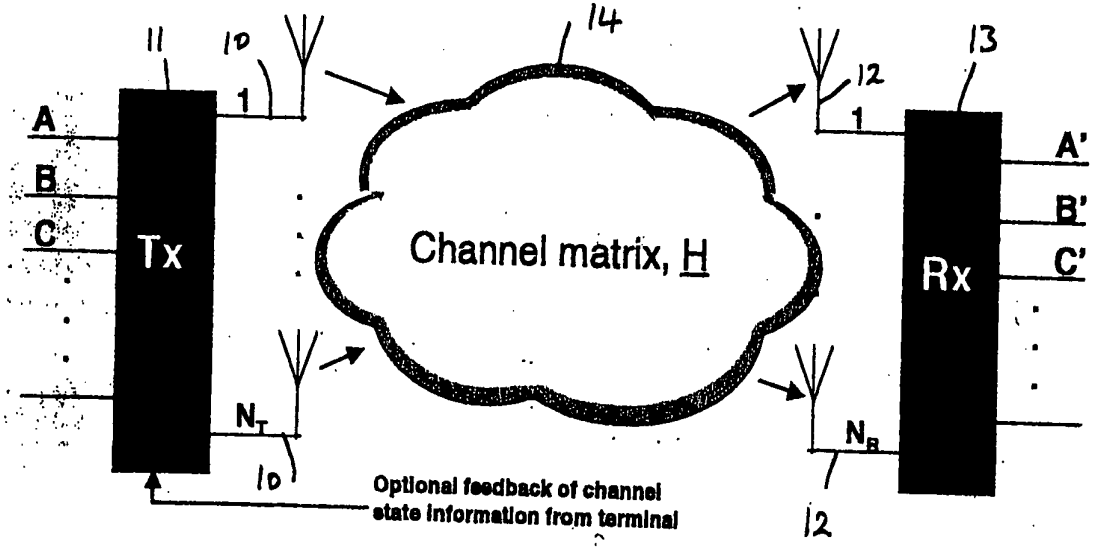


PRIOR ART

FIGURE 1

1/F

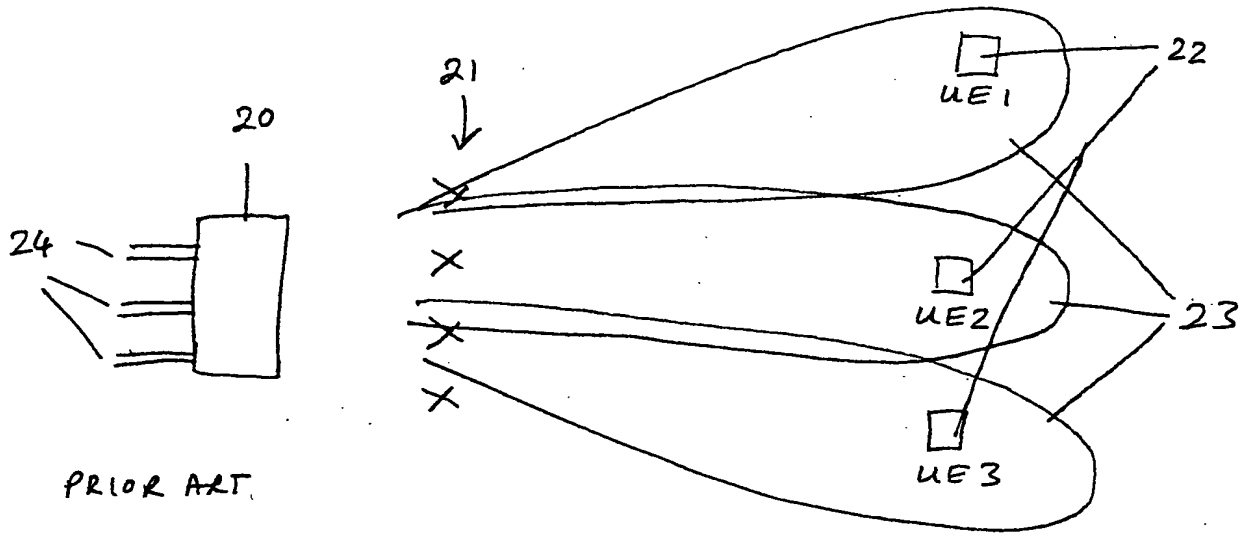


FIGURE 2

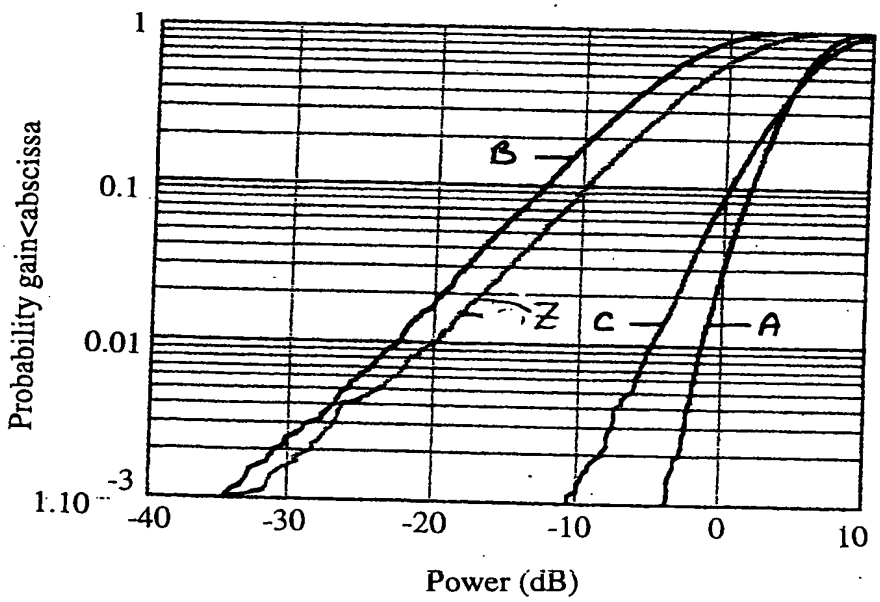
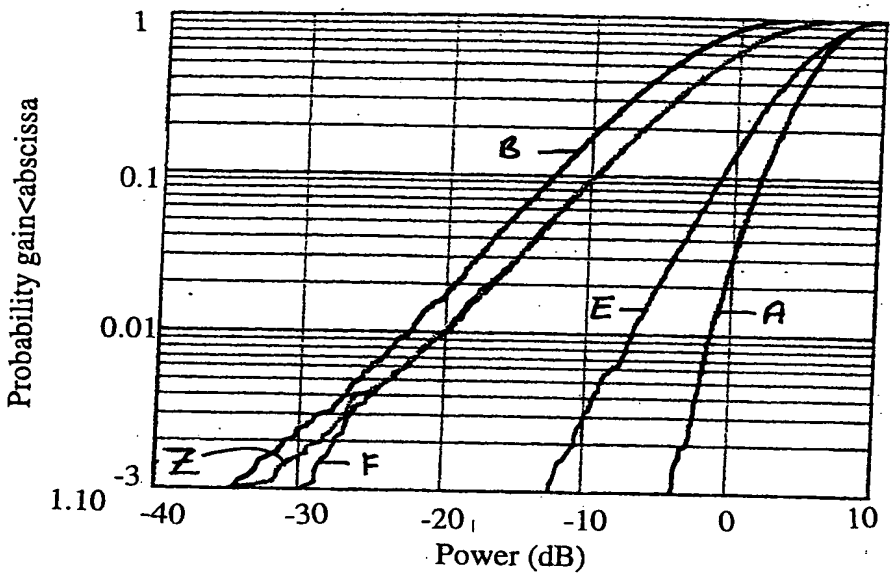


Figure 3

A Max channel, no correlation
B Min channel, no correlation
C Max channel, complete correlation
D Min channel, complete correlation (not present)
Z Baseline 1:1



A Max channel, polarisation diversity, full polarisation conversion
B Min channel, polarisation diversity, full polarisation conversion
E Max channel, pol'n diversity, no polarisation conversion
F Min channel, pol'n diversity, no polarisation conversion
Z Baseline 1:1

Figure 4

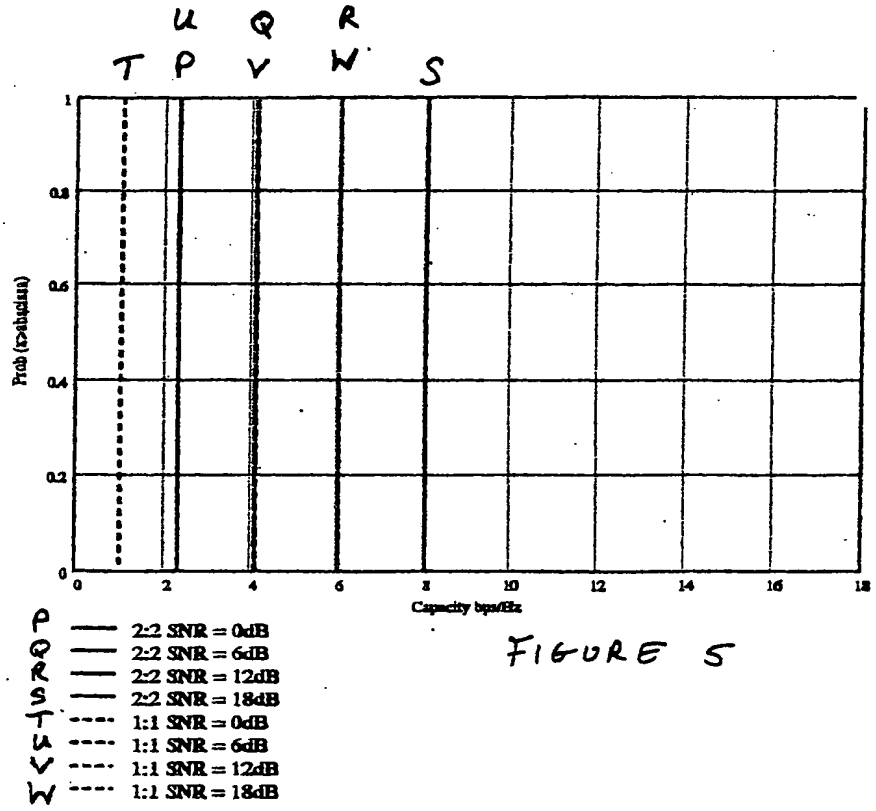


FIGURE 5

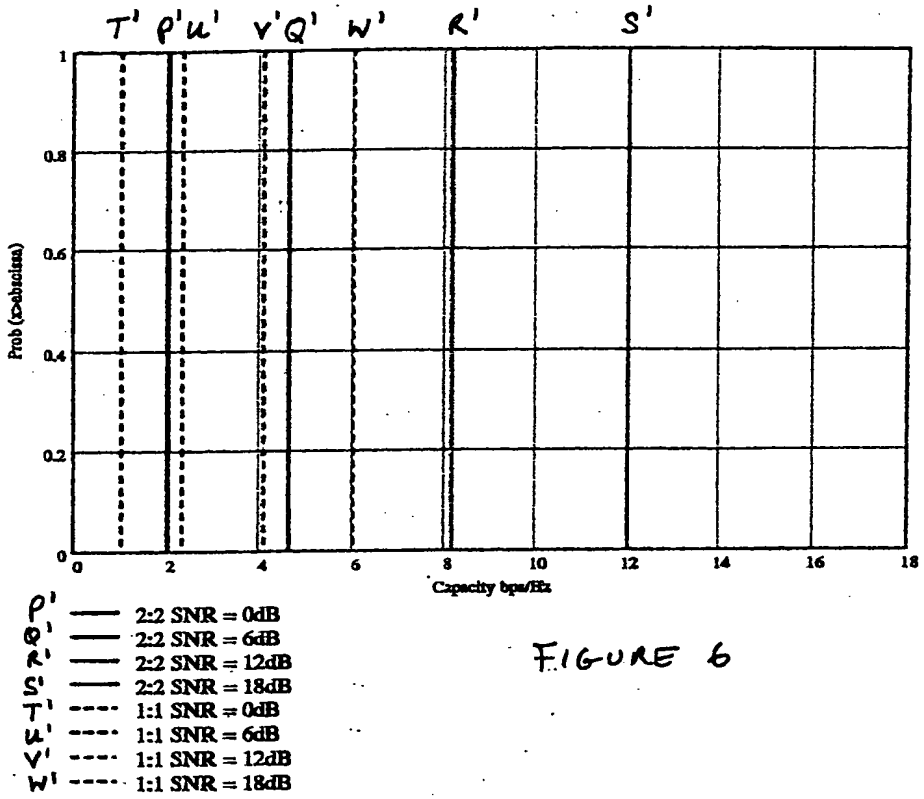

T' P'U' V'Q' W' R' S'
Prob (correct)
Capacity bps/Hz
0
0.2
0.4
0.6
0.8
1
0
2
4
6
8
10
12
14
16
18
P' —— 2:2 SNR = 0dB
Q' —— 2:2 SNR = 6dB
R' —— 2:2 SNR = 12dB
S' —— 2:2 SNR = 18dB
T' ---- 1:1 SNR = 0dB
U' ---- 1:1 SNR = 6dB
V' ---- 1:1 SNR = 12dB
W' ---- 1:1 SNR = 18dB

FIGURE 6

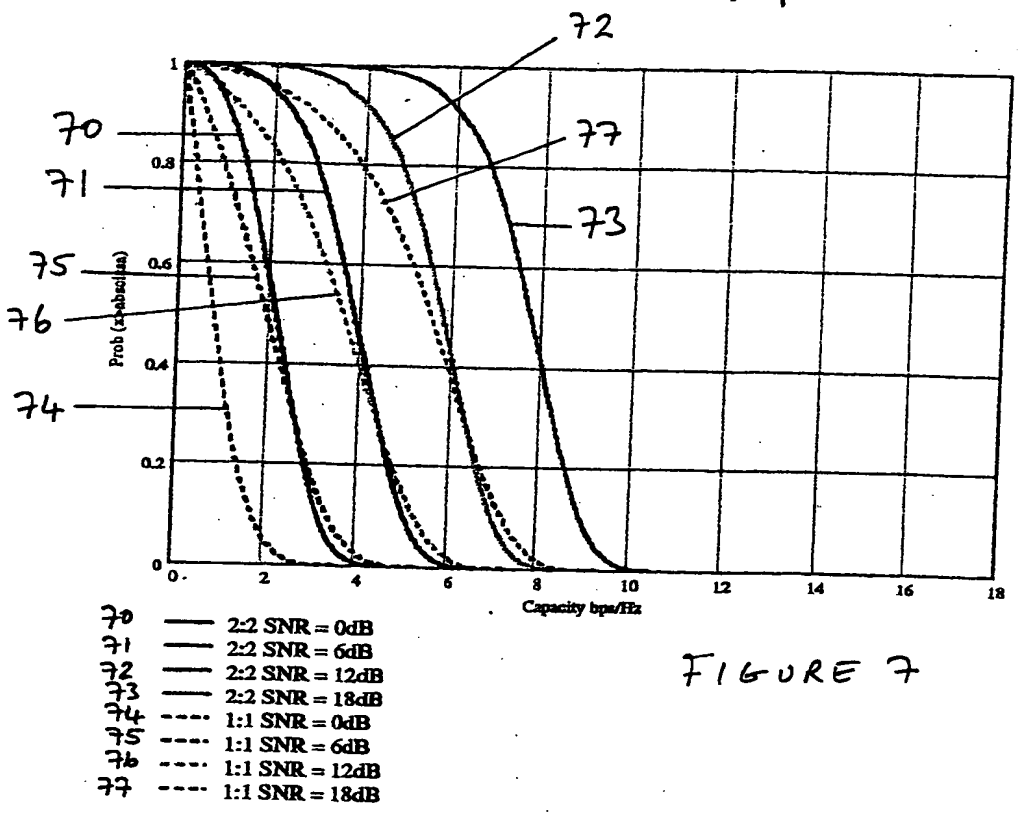


FIGURE 7

Figure 7 – Capacity for 2:2 space diversity MIMO system with the basestation antennas (transmitter) completely correlated and the mobile completely uncorrelated.

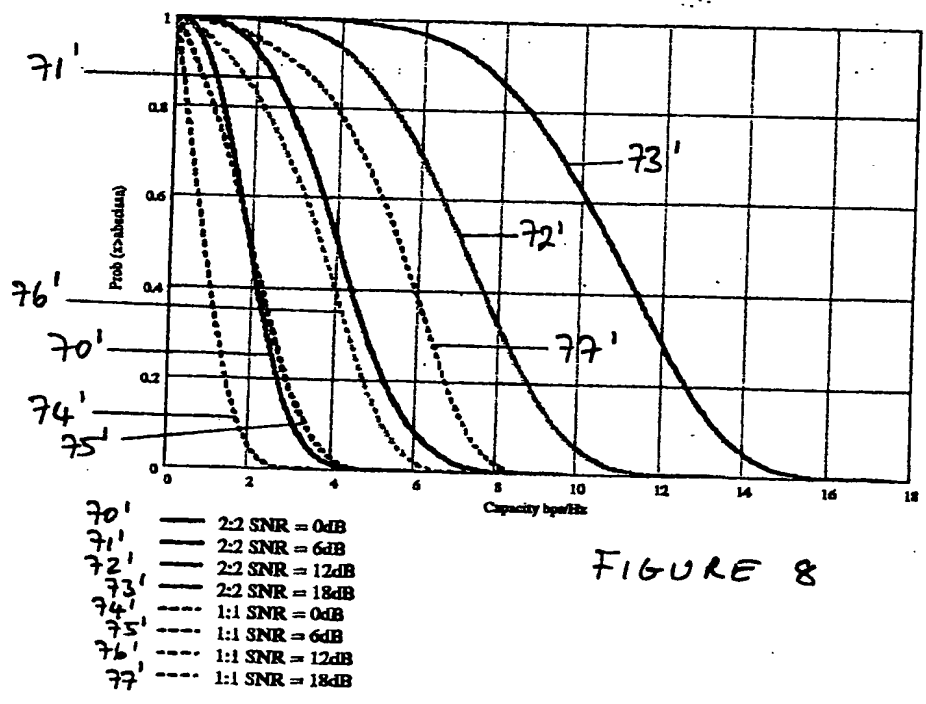
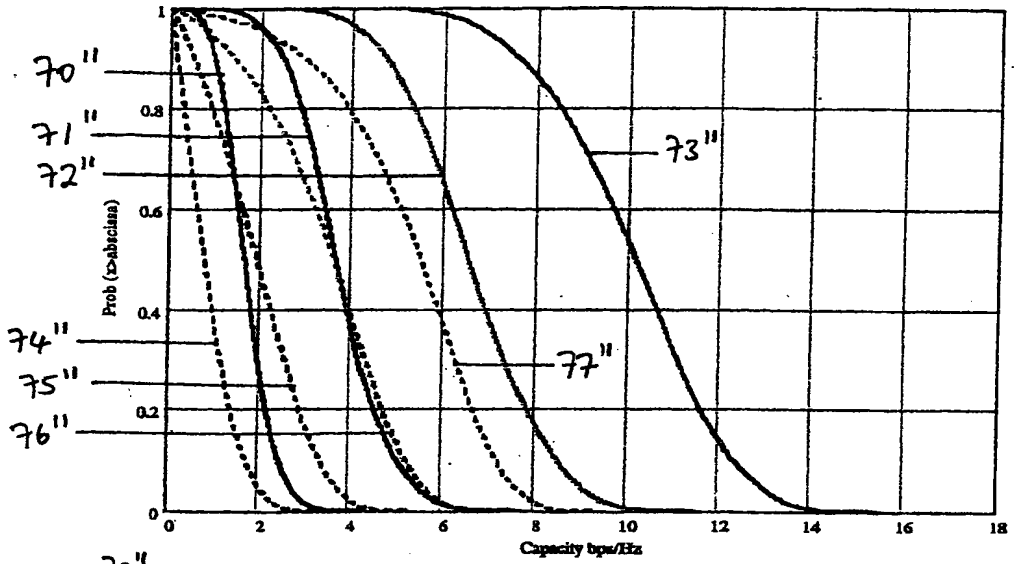


FIGURE 8

Figure 8 – Capacity for 2:2 polarisation diversity MIMO with no polarisation conversion in the environment



70" —— 2:2 SNR = 0dB
71" —— 2:2 SNR = 6dB
72" —— 2:2 SNR = 12dB
73" —— 2:2 SNR = 18dB
74" ---- 1:1 SNR = 0dB
75" ---- 1:1 SNR = 6dB
76" ---- 1:1 SNR = 12dB
77" ---- 1:1 SNR = 18dB

FIGURE 9

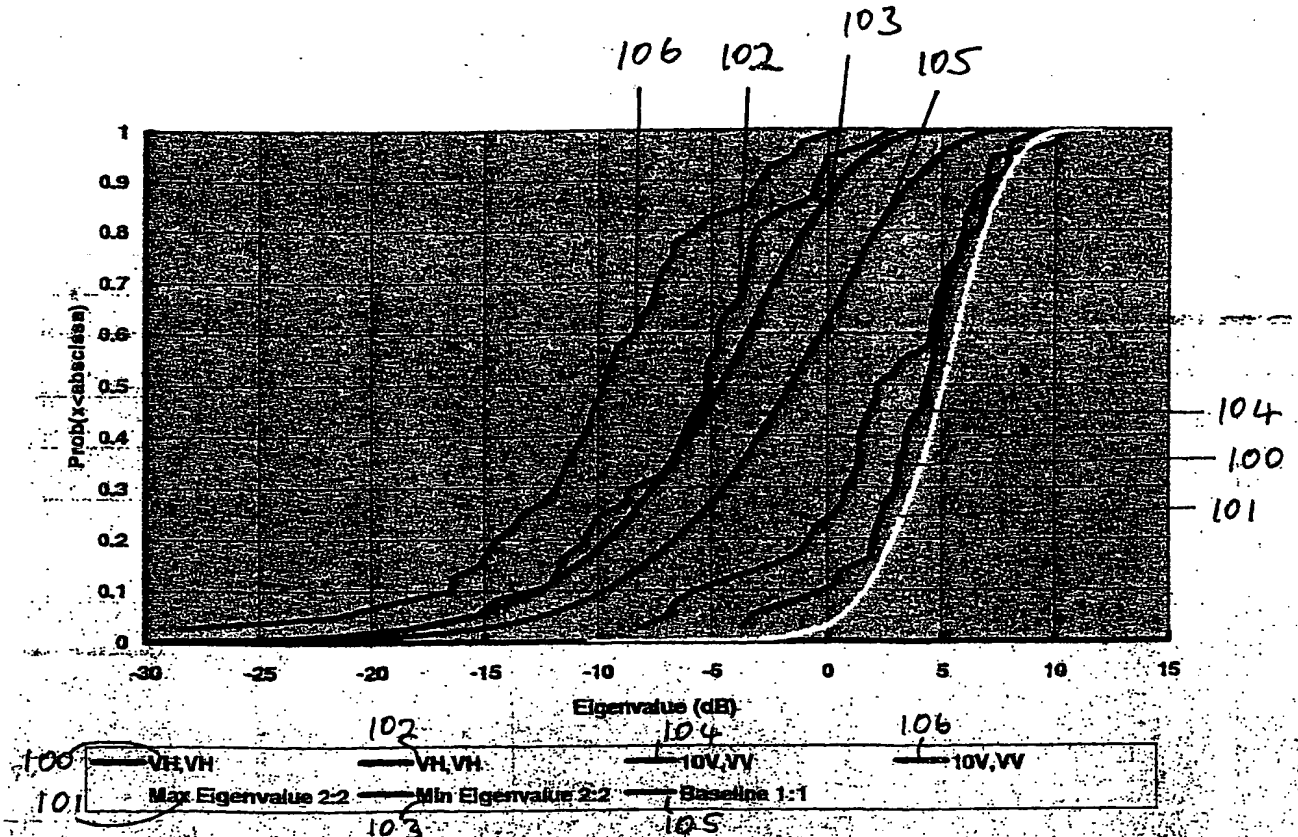


Figure 0-10 – Measured distributions for the power gains for the orthogonal MIMO paths for 2:2 space and polarisation diversity configurations.

FIGURE 10.

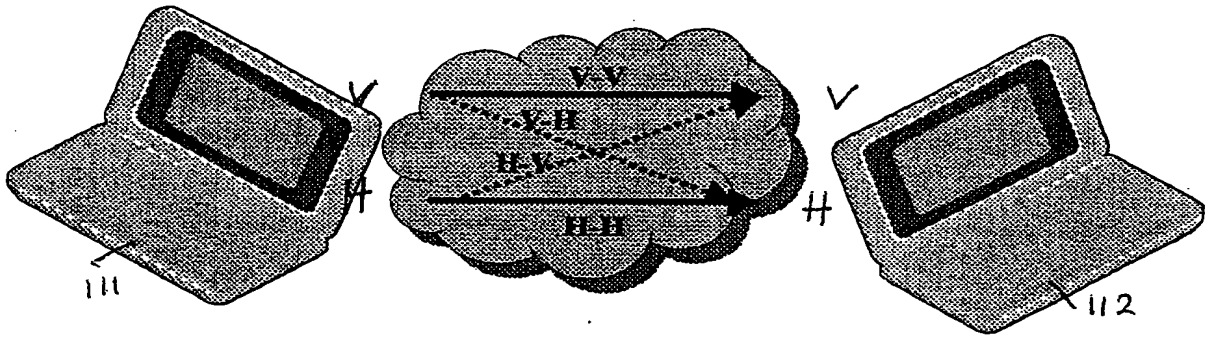


FIGURE 11

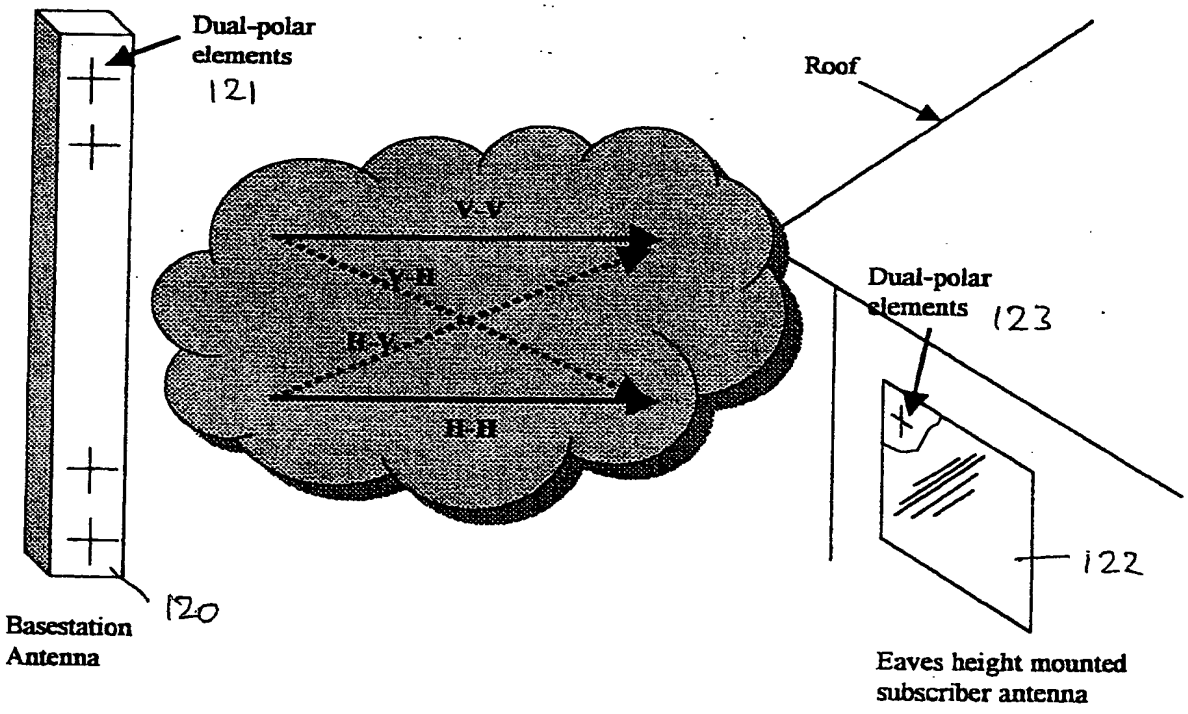


FIGURE 12

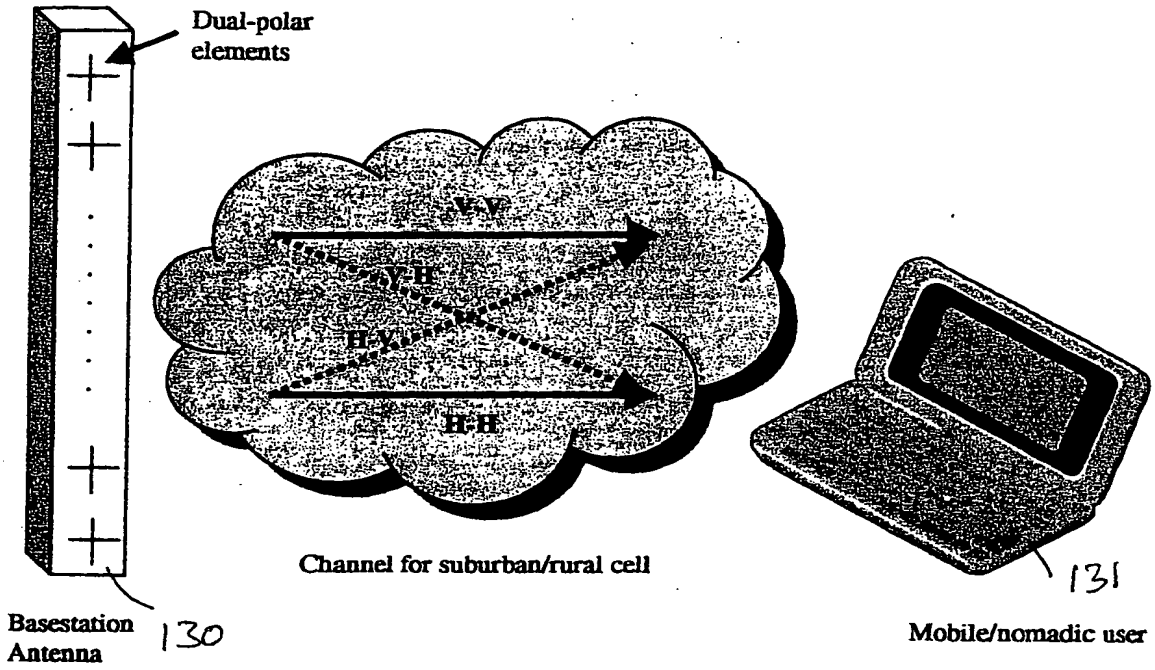


FIGURE 13

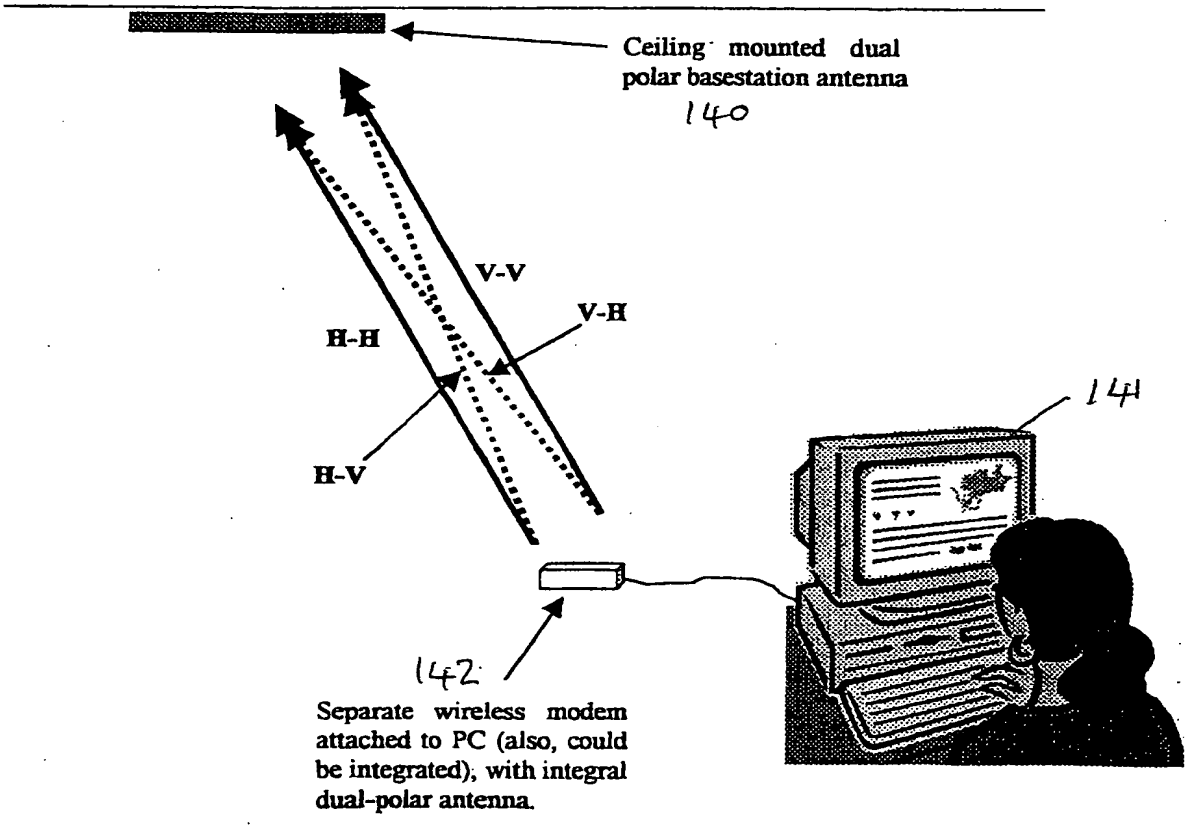


FIGURE 14.

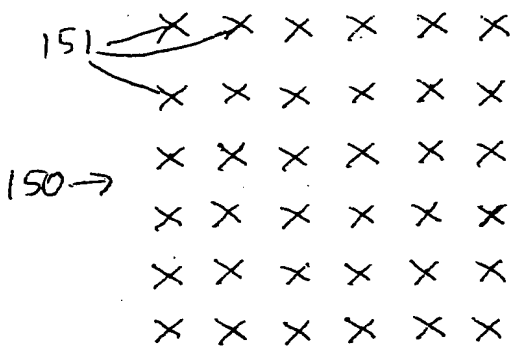


Fig 15A

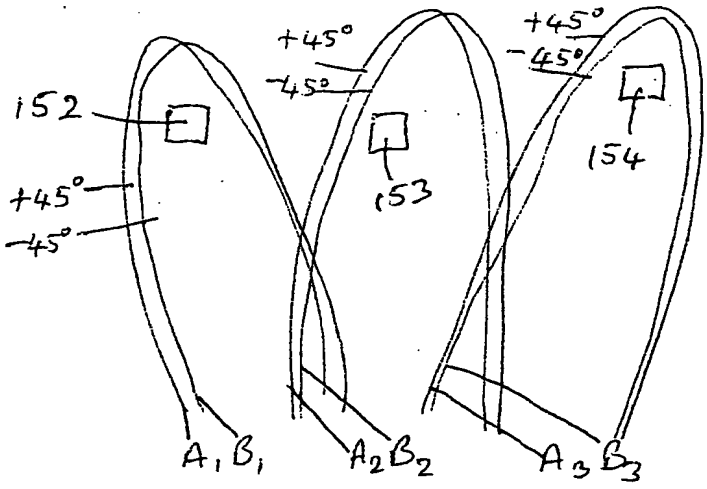


Fig 15B

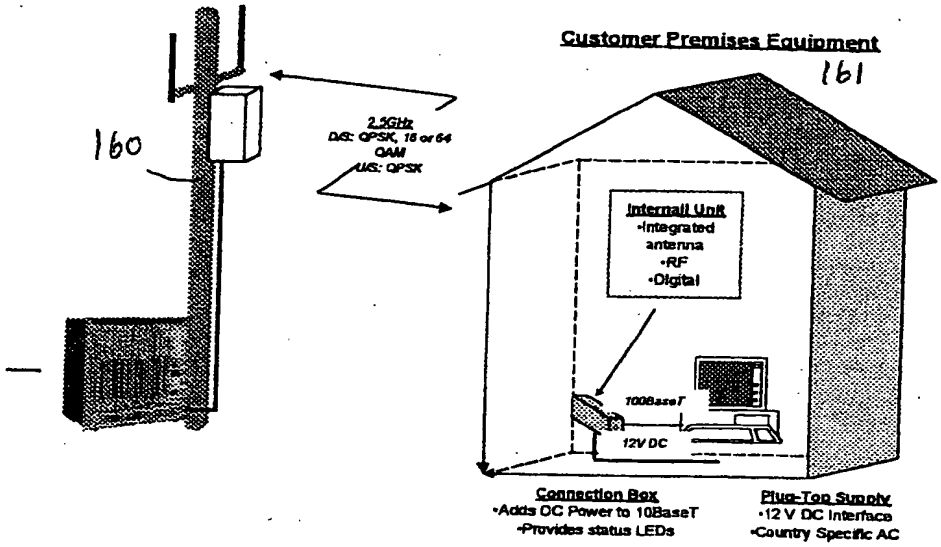


FIGURE 16

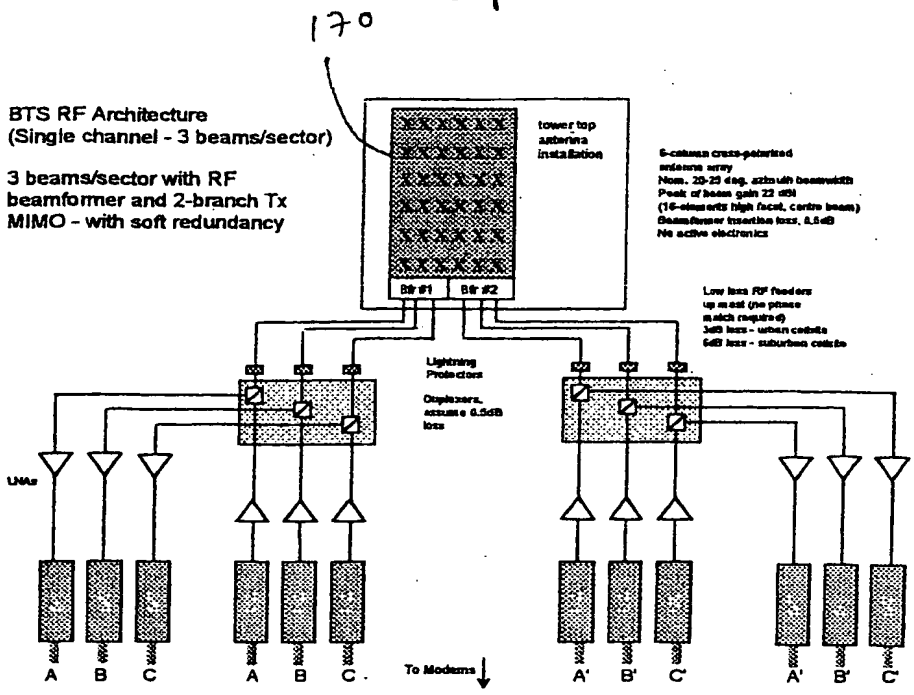


FIGURE 17

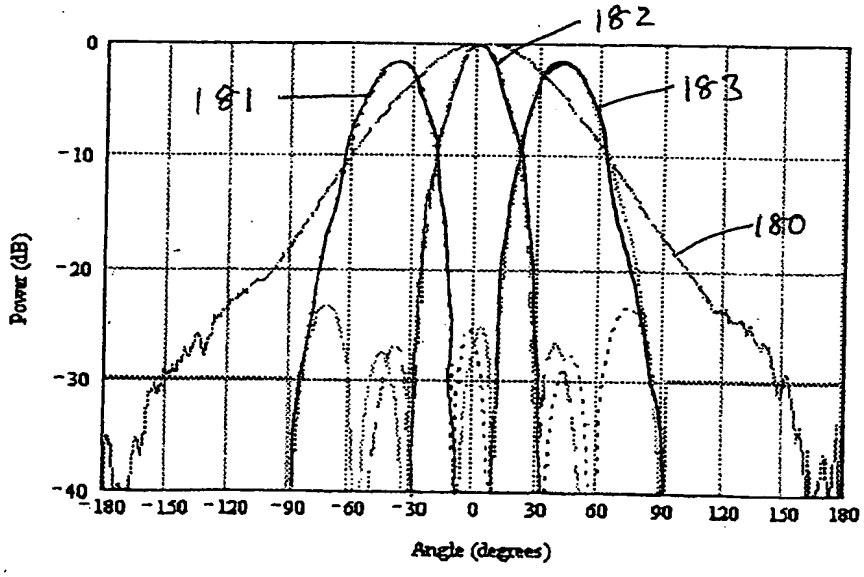
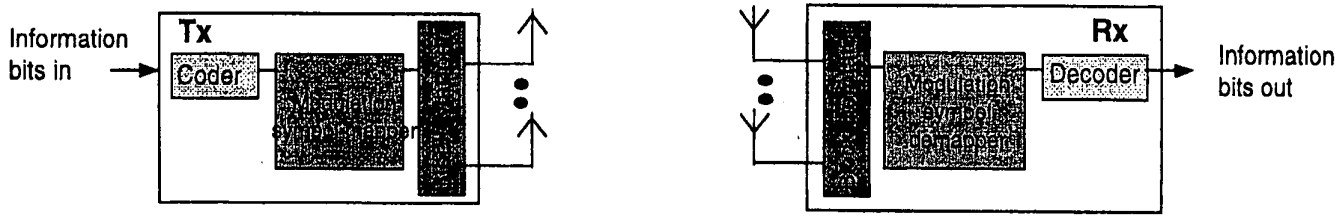


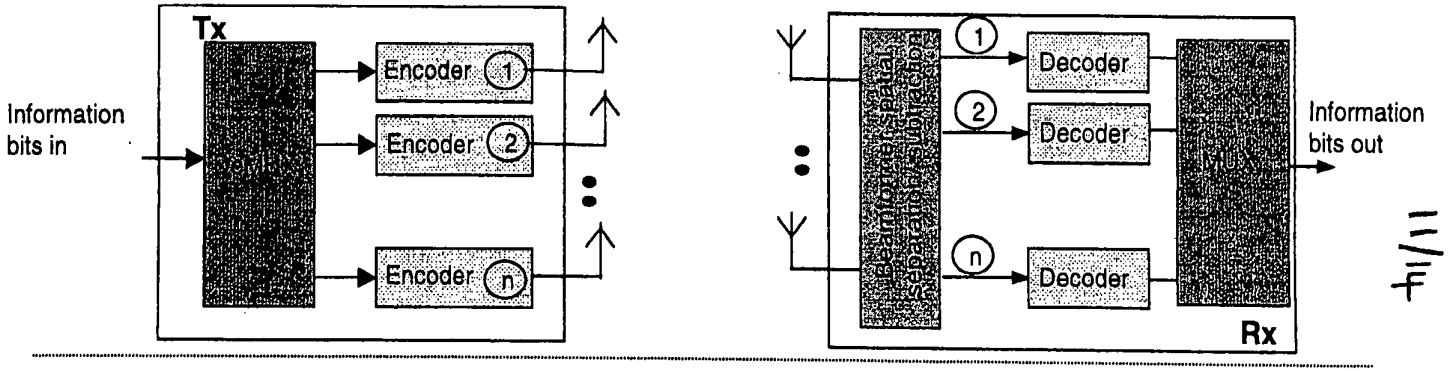
FIGURE 18.

Basic Space-Time Coding Techniques

Space-Time Block Coding (STBC)
- ***defined for 3G***



Layered Space-Time (BLAST)
- ***more applicable to fixed/nomadic***



Space-Time Trellis Coding (STTC)
- ***suitable for both mobile and fixed***

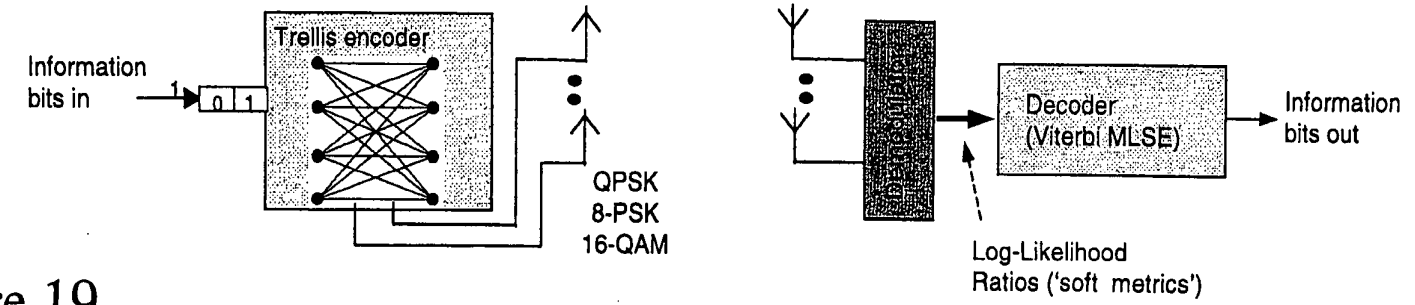


Figure 19

Feedback STC - Separated Subchannels

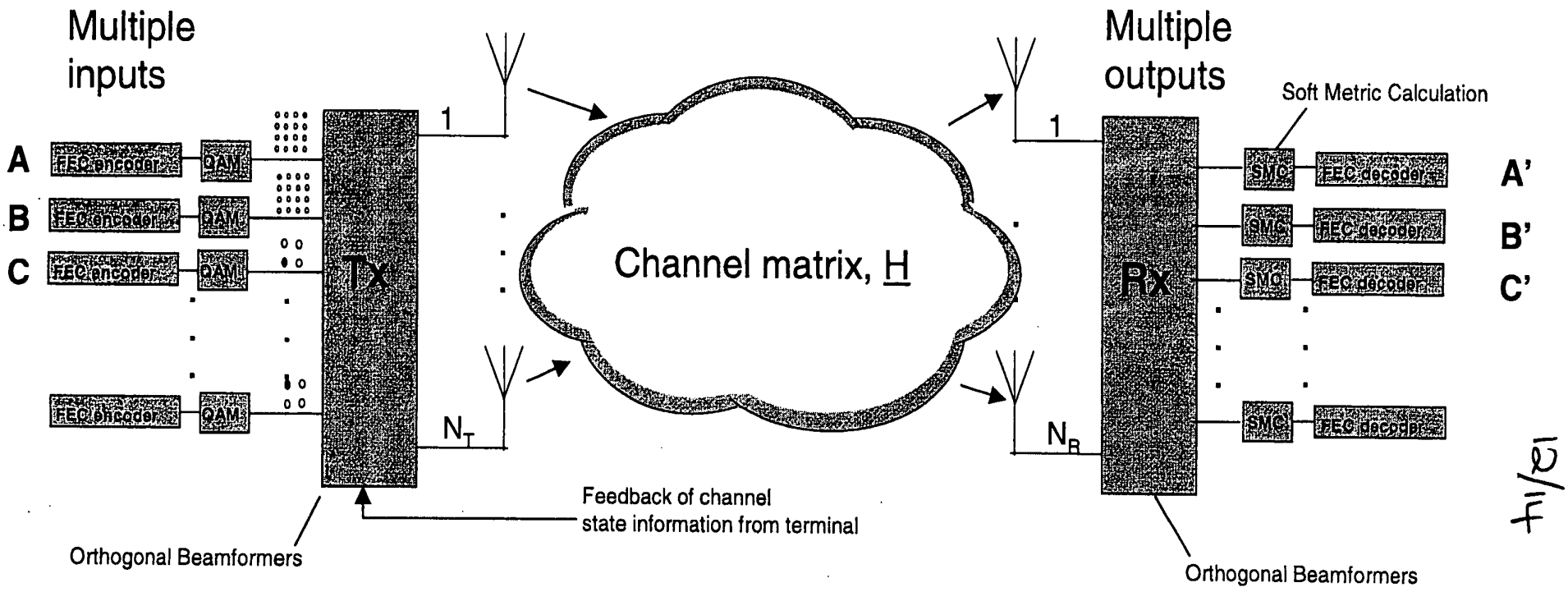


Figure 20

Spatial Multiplexing STC

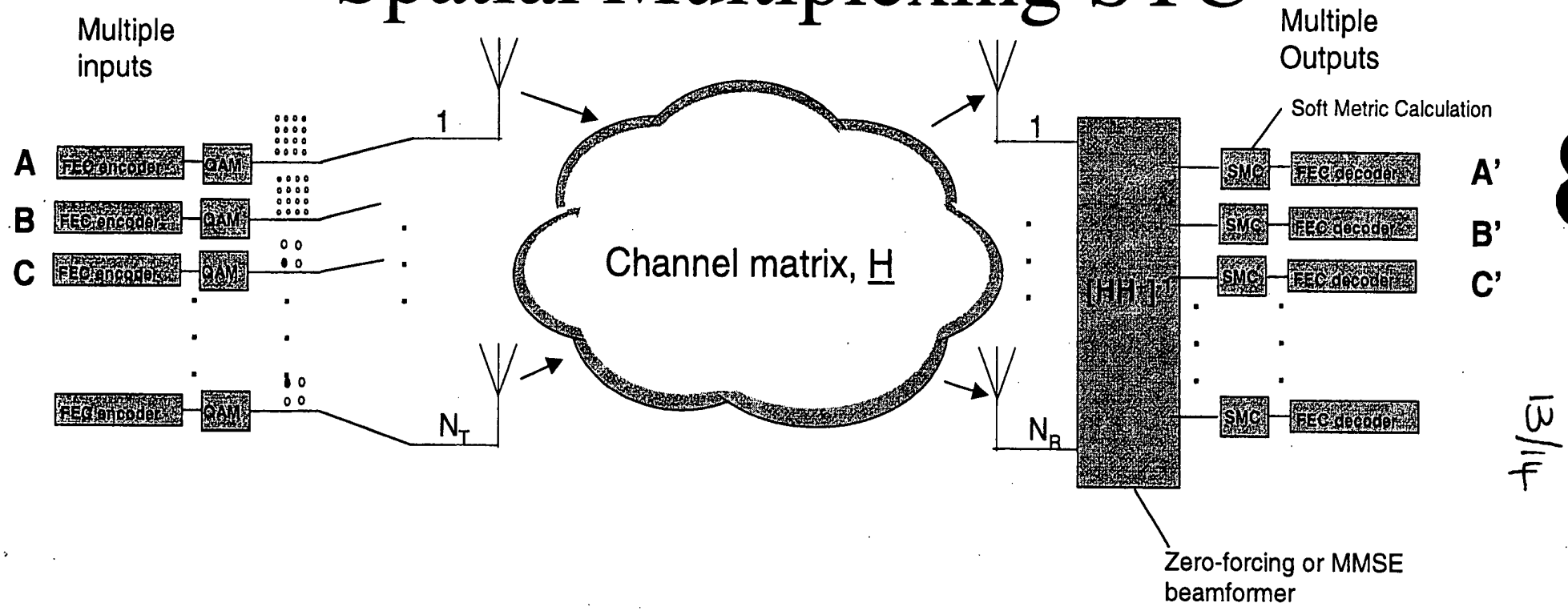


Figure 21

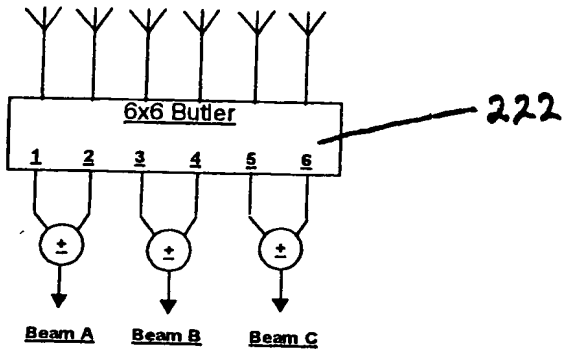


FIGURE 22